UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/847,044	05/02/2001	Mark A. Kampe	80168-0101	5220

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EXAMINER
BARQADLE, YASIN M

ART UNIT	PAPER NUMBER
2153	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/847,044	KAMPE ET AL.
	Examiner	Art Unit	
	Yasin M Barqadle	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 August 2004</u>.

2a)☒ This action is **FINAL**.　　　2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-18</u> is/are pending in the application.

　　4a) Of the above claim(s) <u>1-7 and 9</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>8 and 12-18</u> is/are rejected.

7)☒ Claim(s) <u>10-11</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/17/04</u>.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1.   The amendment filed on August 30, 2004 has been fully

considered but are moot in view of the new ground(s) of

rejection that is necessitated by amendment and the newly added

claims.

- Claims 1-7 and 9 have been canceled.

- Claims 8,10-15 have been amended.

- Claims 16-18 have been newly added.

- Claims 8 and 10-18 are presented for examination.

Claim Objections

Claim 10 is objected to because of the following informalities:

it refers to a canceled claim.   Appropriate correction is

required.

Allowable Subject Matter

Claim 10 is objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any

intervening claims.

Response to Amendment

In page 7, first paragraph, Applicant argues "there is no teaching that a master node (such as Frank's "coordinator node"...issues a heartbeat to each node in the cluster." Examiner notes that Frank teaches nodes in a computer network cluster (fig. 1) continually monitoring the other nodes in the cluster, where heartbeat messages are sent from each node (including the designated coordinator node) to each other node of the cluster [col.5, lines 13-24].

In response to applicant's argument in page 7, second paragraph that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a method for monitoring the viability of cluster members that reduces the number of heartbeat signals or monitoring traffic required to maintain an accurate listing of viable cluster members) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

As to applicant argument in page 7 and 8, third paragraph that Frank "fails to teach that viable nodes respond to a heartbeat only if the heartbeat is received with a particular time-out period." And that Frank "does not specify actions to take after such verification" Examiner notes that Frank teach a means for monitoring the membership status of the nodes in the cluster whereby heartbeat messages are sent from each node (including the designated coordinator node) to each other node of the cluster. If a node fails to receive a heartbeat message from one of the other node within a predetermined time interval, the cluster would enter reconfiguration mode [col.5, lines 15-24].

Applicant also argues that Frank does not teach determining a master node priority for each of the viable nodes and electing the node with highest priority as the new master. Examiner notes the Frank teaches electing one of the nodes as a coordinator node based on the node ID. In this case the node with the highest or lower node id. Frank uses the value of the node id ad the priority value col. 7, lines 15-30 and col. 9, lines 63 to col. 10, line 51].

As to applicant argument in page 9, third paragraph that "Frank provides no discussion of a potential cluster member and

existing cluster members performing a consensus protocol...

enabling the potential cluster membership to join the cluster."

Examiner notes that Frank teaches one form of performing cluster

is by having a quorum of nodes to be available [col. 14-20].

Frank also teaches performing a vote when the cluster is a

partitioned [col. 9, lines 64 to col. 8]. Furthermore, the new

rejection of claim 8 and the combination of Frank and

Christensen teach this limitation as explained in claim 8. See

the rejection of claim 8 below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which

forms the basis for all obviousness rejections set forth in this

Office action:

> (a) A patent may not be obtained though the invention is not identically
> disclosed or described as set forth in section 102 of this title, if the
> differences between the subject matter sought to be patented and the prior
> art are such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in the
> art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable

over Frank et al U.S. Patent (6532494) in view of Christensen et

al USPN. (6330605).

As per claim 8, Frank et al teach a method for joining a cluster (cluster 10) with a cluster membership monitor (fig. 2, cluster manager 32) within a clustered computer network [fig. 2), comprising the steps of:

starting a local cluster membership monitor entity on a node when it boots [after a failure a coordinator node rejoins the cluster (when it boots) and a new coordinator is selected col. 8, lines 43-65];

with the local cluster membership monitor entity, establishing contact with peer cluster membership monitor entities on peer nodes of the cluster [each cluster manager manages cluster network connectivity and oversees the addition/removal of nodes from the cluster network col. 4, line 7-43 and col. 5, lines 1-24];

when the peers nodes are found, performing a consensus protocol with the booting node and the found peer nodes [one of the member nodes is designated as a coordinator node based on highest or lower node id col. 7, lines 15-30 and col. 10, lines 23-51];

when the consensus protocol performing results in a consensus being achieved, determining whether one of the found peer nodes is a mater node of the cluster [col. 7, lines 15-30 and col. 9, lines 63 to col. 10, line 51].

Although Frank et al shows substantial features of the claimed invention, he does not explicitly show joining a cluster with a booting node.

Nonetheless, this feature is well known in the art and would have been an obvious modification of the system disclosed by Frank et al, as evidenced by Christensen et al USPN. (6330605).

In analogous art, Christensen et al whose invention is about a proxy cache clustering system, disclose a powering up an offline node to rejoin an existing cluster [Col. 8, lines 4-45]. Giving the teaching of Christensen et al, a person of ordinary skill in the art would have readily recognized the desirability and the advantage of modifying Frank et al by employing the system of Christensen et al because this will enable a cluster member to easily join an existing/original cluster when it is moved from one location to another [Col. 8, lines 4-45].

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for
patent by another filed in the United States before the invention thereof
by the applicant for patent, or on an international application by another
who has fulfilled the requirements of paragraphs (1), (2), and (4) of
section 371(c) of this title before the invention thereof by the applicant
for patent.

The changes made to 35 U.S.C. 102(e) by the American

Inventors Protection Act of 1999 (AIPA) and the Intellectual

Property and High Technology Technical Amendments Act of 2002 do

not apply when the reference is a U.S. patent resulting directly

or indirectly from an international application filed before

November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the

amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 12-18 are rejected under 35 U.S.C. 102(e) as being

anticipated by Christensen et al USPN. (6330605).

As per claim 12, Christensen et al teach a method for monitoring

the viability of cluster members ((fig.1), comprising the steps

of:

identifying one of the cluster members as a master node

[one of the nodes is designated as coordinator node col. 6,

lines 37-56];

   providing a heartbeat by the master node to other ones of

the cluster [col. 6, lines 37-43 and col. 9, lines 33-57]; and

   if the heartbeat received by the viable nodes among the

other ones is within a peer node time-out period, operating the

viable nodes to respond to the master node col. 9,lines 33 to

col. 10, line 26]; and

   if the heartbeat received by the viable nodes is outside

the peer node time-out period, operating at least one of the

viable nodes to initiate a reformation of a cluster members

[col. 9,lines 33 to col. 10, line 26].

As per claim 13, Christensen et al teach the method of claim 12,

further comprising the steps of

   Maintaining a master list of the cluster members with the

master node [col. 6, lines 12-55; col. 15, lines 51-55 and col.

9, lines 39 to col. 10 line 29];

   with the master node, verifying that each of the other ones

has responded to the heartbeat [col. 9, lines 39 to col. 10 line

29]; and

   if all nodes listed in a master list of cluster members

have responded, providing another heartbeat with the master

node, and wherein otherwise a node not responding is removed

from the list of cluster members and a cluster change request is made [col. 9, lines 63 to col. 10, lines 43].

As per claim 14, Christensen et al teach the method of claim 13, wherein the cluster change request further comprises notifying a cluster coordination function [col. 7, lines 40-52 and col. 8, lines 4-45 and col. 15, lines 51-55].

As per claim 15, Christensen et al teach the method of claim 12, wherein the cluster reformation further comprises the steps of:

verifying if cluster reformation has already been initiated [col. 9, lines 39 to col. 10, line 45]; and

wherein if cluster reformation has not been initiated, cluster reformation is initiated [col. 9, lines 39 to col. 10, line 45];

determinig a master node priority of each of the viable nodes [col. 6, lines 16-56 and col. 8, lines 27-38];

electing the viable node with the highest priority to be a new master node [col.8, lines 4-45 and col. 9, lines 39 to col. 10, line 45]; and

operating the new master node to repeat the providing of the heartbeat to other ones of the cluster members [col.8, lines 4-45 and col. 9, lines 39 to col. 10, line 45].

As per claim 16, Christensen et al teach a system for monitoring

cluster membership within a clustered computer network (fig.1),

comprising

a plurality of peer nodes (node 400, fig. 3)

communicatively linked within the clustered computer network

(see fig. 3) and each locally running a cluster membership

monitor (each PMM (node) monitors heartbeat of other members of

the cluster col. 9, lines 39-41) and having a master node (PCC

coordinator 350, fig. 3) priority value (the primary network

address is used in electing a PCC coordinator)[fig. 3, col. 6,

lines 16-56 and col. 8, lines 27-38];

wherein a one of the peer nodes having the highest of the

master node priority values is elected as a master node [the

value of primary network address is used in electing a PCC

coordinator col. 6, lines 16-56 and col. 8, lines 27-38];

wherein the one of the peer nodes elected as the master

node further stores a cluster configuration defining a set of

the peer nodes which are members of a cluster and defining

configuration data for the member peer nodes [fig. 3,

coordinator 350 administer common configuration and is

responsible for assigning PCC service addresses col. 6, lines

12-55]; and

wherein the master node periodically transmits a heartbeat

to each of the member peer nodes and viable ones of the member

peer nodes respond to provide an indication of viability [see

fig. 3, heartbeat 310 and col. 6, lines 37-43 and col. 9, lines

39-57].

As per claim 17, Christensen et al teach the system of claim 16,

wherein the viable ones of the member peer nodes only perform

the responding when the heartbeat is received within a period of

time defined in the configuration data and when not received

with the period of time, at least one of the viable ones of the

member peer nodes initiates a cluster reformation which includes

determining a new master node among the viable ones of the

member peer nodes based on the master node priority values [col.

9, lines 39 to col. 10 line 29].

As per claim 18, Christensen et al teach the system of claim 17,

wherein the new master node stores the cluster configuration

defining a new set of the peer nodes which are members of the

cluster and periodically transmits a heartbeat to each of the

peer nodes in the new set of cluster members [col. 6, lines 37-

43; col. 15, lines 51-55 and col. 9, lines 39 to col. 10 line

29].

Conclusion

2.   **ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is

set to expire THREE MONTHS from the mailing date of this action.

In the event a first reply is filed within **TWO MONTHS** of the

mailing date of this final action and the advisory action is not

mailed until after the end of the **THREE-MONTH** shortened

statutory period, then the shortened statutory period will

expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated

from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than

SIX MONTHS from the date of this final action.

The prior made of record and not relied upon is considered

pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier

communications from the examiner should be directed to Yasin

Barqadle whose telephone number is 571-272-3947. The examiner

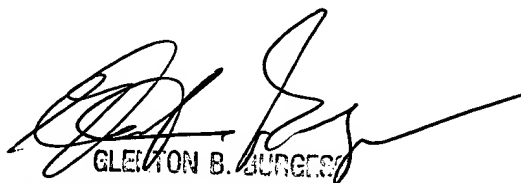can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are
unsuccessful, the examiner's supervisor, Glenn Burgess can be
reached on 571-272-3949. The fax phone numbers for the
organization where this application or proceeding is assigned
are 703-872-9306 for regular communications and 703-746-7238 for
After Final communications.

Any inquiry of a general nature or relating to the status
of this application or proceeding should be directed to the
receptionist whose telephone number is 703-305-3900.

Yasin Barqadle

Art Unit 2153

GLENTON B. BURGESS
SUPERVISORY PATENT EXAMINER
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